

of organic brain disease, and cases with mild symptoms are received because, supposedly, they cannot be taken care of at home. Most of these cases could be reached through the psychopathic department, which should be a part of every one of our state hospitals. Many of them would be out-patients and their home care could be undertaken by the hospital nurses undergoing training as above suggested, under the general supervision of the medical staff and head nurses.

Progress in the economic care of the insane should come in future years in part through the care of a larger proportion, than at the present, in the general community. But before this can be accomplished, we must have the means of reaching back from the hospital to the family and trying to see what can be done for the patient first of all—out of the hospital. Such work as this, no doubt, will be done in part independently, but as the hospital is the centre of expert knowledge and experience, it should exert a powerful influence in helping the public to adopt the best means of dealing with the entire question of the care of the insane. The writer believes the specially trained nurses may become of great help in solving the problem.

Clinical Department.

A CASE OF ORTHOSTATIC ALBUMINURIA TREATED BY EXERCISE.

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IN reading the literature and the case reports of orthostatic albuminuria one is compelled to remark the different factors which are given prominence in the etiology of this condition. The report of the following case is made with no desire of placing it in any of the usual classifications, nor to describe it as one of any special type. It is reported because I believe it represents a true case of orthostatic albuminuria which was improved and possibly cured by a system of exercises built around the knowledge, that in this case certain positions of the erect spine caused an increase of the amount of albumin excreted in the urine.

E. T. Girl, eight and three-fourths years. Entered the medical out patient department of the Children's Hospital in January, 1913. At that time the history obtained from her mother was as follows:—

Her father, mother, one sister and four brothers were living and well. Three children had died in infancy from causes unknown to the examining physician. The mother gave a history of one miscarriage during her second pregnancy. There had

been no known exposure in the family to tuberculosis nor malignancy.

The patient had been born at full term without the aid of instruments or anesthetics. She had been breast fed for twelve months, after which, it was evident from the mother's account, that she got good food in proper amounts. During her first year she was perfectly well, except for acute bronchitis, from which she fully recovered. At the age of three she had measles. She has escaped the other diseases common to childhood, and up to the time of her present illness has always been a well child.

For the past three weeks the little girl has had sharp pains in the abdomen, nearly every day. These attacks come as frequently as three or four times a day, and have no relation to the ingestion of food. The pain seems to be referred to the region of the umbilicus. At no time has the mother noticed spasm of the abdominal muscles nor tenderness. Previously, and during the last three weeks, the child's appetite has been poor and the general health as usual. The diet has been good with the exception, possibly, of too much candy. The mother states that the child has been sleeping well and has been without complaint, except for persistent constipation. This constipation has been relieved by the frequent use of licorice powder.

Physical examination showed a bright, well developed and nourished girl, apparently not in pain. She answered all questions intelligently. Her skin was clear and her mucous membranes clean and of good color. Pupils were equal and reacted to light and distance. No enlargement of superficial lymph-nodes was found. The tongue was clean and her teeth excellent. The throat examination showed no abnormalities. Her lungs were normal in all respects. The heart was very carefully examined and found to be normal in size and position, and without murmurs. Her abdomen was soft and without tenderness, being easily and painlessly palpated. No enlargement nor derangement of the abdominal contents was found. The extremities were normal, as were all her reflexes. She seemed a normal child, save that she stood with increase in the curve of her lumbar spine. She had a marked lumbar lordosis, with some forward sagging of the abdomen.

On entrance the hemoglobin was 90%; leucocytes, 14,000; polynuclears, 70%; lymphocytes, 30%. The urine at 9.30 a. m. had traces of albumin, but was otherwise negative.

The urine at 2.15 p. m. was normal in color, clear, neutral in reaction. Albumin, slight possible trace; contained no sugar nor acetone. The sediment showed a few squamous vaginal cells with rare leucocytes, and no casts.

The second day the urine was normal in color, clear, with a specific gravity of 1012 and contained no sugar, but had very slight possible trace of albumin. The sediment showed squamous cells, but was otherwise negative.

The third day the child was put to bed for four hours and the urine following showed clear, neutral, with albumin only very slightest possible trace; then the child was allowed to be up for two hours and the urine showed clear and neutral reaction, and contained very large trace of albumin, $\frac{3}{4}\%$ by Esbach test. The child was then taken off her feet and placed in wheel chair for one hour. The urine following showed clear, neutral in reaction, containing only a slight possible trace of

albumin. After this the child was kept quiet in bed and the albumin disappeared from the urine. She was then allowed to be up and about the ward and the urine repeatedly showed a large trace. All abdominal pain has disappeared since entrance and her bowels are now regular in function, licorice powder being necessary at times to preserve this regularity.

On the eighth day of her observation the child was in bed with a pillow under the lower dorsal vertebrae, this increasing the lumbar lordosis with the child in the horizontal position. The urine following was clear, neutral in reaction and showed a very slight trace of albumin. The same day when in bed without a pillow, the urine showed clear, neutral in reaction, and only showed the very slightest possible trace of albumin.

On the ninth day the child was allowed to get up and walk about the ward in a position called for clearness, No. 1. This position is obtained by passing straps over the shoulder and down the back so that the head, cervical, dorsal, and lumbar vertebrae are all bent backwards, increasing the lumbar lordosis. After position No. 1 the urine showed a very large trace of albumin. The position of the patient was then changed into that of No. 2. In this position the lumbar lordosis is decreased by passing the straps down the front of the trunk in the reverse to that in which they were in position No. 1. In this position a very slight trace of albumin was obtained. Renal function test performed on this day showed normal, 45% being excreted one hour after the injection of the phenol-sulphonethalein.

From the eighth day until the discharge from the hospital the patient was kept on a minimum proteid diet or on the usual house diet. There was no change in the albumin excreted, just as much being found with the low proteid as with the high proteid diet.

The patient left the hospital on the tenth day, but has been seen at intervals and the urine examined. It was found by the method of Jehle, as described in the *Wiener-Klinische Wochenschrift*, Feb. 27. Vol. 26. page 109. that raising the foot upon a stool so that the thigh was flexed to right angles with the trunk and kept in this position, caused no change in the amount of albumin excreted in the urine. Jehle believes that this position, decreasing if not obliterating the lumbar lordosis as it does, has a direct action upon the relaxation of the perinephritic tissue. Although this test was tried several times nothing definite was observed.

Here was a child apparently normal except that when she assumed her usual erect position her kidneys excreted albumin. From the observations made upon children with chronic constipation, where the condition was cured by exercise, the writer had noticed that decrease in the lumbar lordosis was coincident with a lessening of the complaint. Exercises were, therefore, commenced and carried on vigorously. All muscular exertion which tended to lessen the lumbar lordosis was encouraged, while all positions which increased it were forbidden. These exercises were definitely arranged, first to increase the muscle power of the abdominal walls. Particular attention was paid to the recti, superior and inferior obliques and the transversalis. These exercises for muscle power were carried on simultaneously with instructions in "muscle control." Muscle control, the writer feels,

is very important, since by this means the patient has not only the power to hold a given position, but assumes this position first consciously during the training of certain muscles, then unconsciously. From this unconscious assumption of this position she passes into a condition in which she assumes a proper attitude, not occasionally, but continually. This condition was obtained by insisting during all the exercises, of a concentration upon the exercises, and the absolute exclusion of all other thoughts or actions. At first there was some difficulty in obtaining the concentration desired, but the little patient was of unusual intelligence, and an explanation of the importance of doing what we desired and in the way desired soon gave the result for which we have been seeking. The urine was examined once a week for three weeks. The first examination showed a normal urine, with the exception of a slight trace of albumin; the second week it was normal, with the exception of the slightest possible trace of albumin; the third week showed a normal urine in all respects. From then until six months had elapsed from the time the child had been admitted to the hospital wards, the urine has been examined frequently without any trace of albumin having been found. The child appears the same as on entrance, with the exception that now her standing position is perfect. Her lumbar lordosis being now normal for a child of her age and conformation. This improvement in the erect posture the child unconsciously maintains, and with the persistency of this correct attitude the child has ceased to have albuminuria.

The literature on this subject has not been very profuse. W. Arnold examined forty-four patients with chronic tubercular disease of the skin, eight with psoriasis, thirty-three with syphilis, to determine the prevalence of orthostatic albuminuria in these conditions. The findings were negative in the cutaneous affections, but in early and still untreated syphilis, orthostatic albuminuria was encountered almost as frequently as in the early stages of tuberculosis. The discovery of orthostatic albuminuria is, therefore, not to be regarded as a sign of incipient tuberculosis, unless syphilis can be excluded. He adds that orthostatic albuminuria seems to be the manifestation of a chronic infection or intoxication and is not of specific importance. The case under consideration, as far as modern methods of diagnosis could show, had neither incipient tuberculosis nor any form of chronic infection or intoxication.

V. Gonoletsky reports that he lightly compressed, massaged or shook the sagging kidney in thirty-five patients with nephroptosis. He also tested the effect of various positions in eighteen patients with scarlet fever and twenty-seven with other acute infections. The results of these he tabulated and compared. They showed that traumatic injury plays no part in the causation of orthostatic albuminuria. He states it is rare in nephroptosis. It does not develop unless there is functional infection weakening the organism at the period of its most intensive growth. Injury of the kidney from toxic elements and temporary over-strain from the

erect position which makes greater demand upon the energy. These factors are sufficient, he believes, to explain orthostatic albuminuria without incriminating lordosis as the main element. There was definitely no disease of the kidney in this case. The child had never suffered from an acute infectious disease. The most careful inquiry into the child's condition at the onset of the known albuminuria failed to reveal any condition which would lead one to believe that there was any functional impairment of the kidney at that time or that any abnormal demand was being made upon the nerves, vessels or muscles of this section of the child's anatomy.

Frankel examined twenty-one children with spinal disease and found eight free from any trace of albuminuria, while it was evident in the others. In twenty-two other children with albuminuria he found only eight without some amount of spinal deformity. Among other points learned from this research is that the total acidity increased in the children with albuminuria induced by lordosis, unless the children were given beforehand a dose of four grs. sodium bicarbonate. It is possible, he says, that the elimination of albumin in these cases is due to abnormal production of acid. It might be wise to give an alkali occasionally in addition to the hygienic treatment and tonics to combat the constitutional weaknesses. Some of the children were pale and restless and complained of headache; all improved under alkali.

Frankel's observations upon these children were not the observations made upon this isolated case. The urine has never been acid, the child has never been pale, restless or complained of headache, yet before treatment was well instituted had a marked lordosis of the spine, with albuminuria.

K. Dietl calls attention to the importance of vasomotor instability as a factor of equal moment with lordosis in the production of orthostatic albuminuria. The lordosis may cause stagnation in the renal vessels and thus induce albuminuria, but a sound vasomotor system is generally able to compensate for this. Consequently when a person with orthostatic albuminuria has his vasomotor toned up, the albuminuria may subside in spite of the persistency of the lordosis. Viewing this case in relation to the above remark of Dietl, as far as it was possible to observe, there was no definite trouble with this little girl's vasomotor system. If the decrease in the amount of albumin excreted was due to what Dietl calls a toning up of the vasomotor system, this must have been done by some agent and in a manner unknown to the writer.

P. Stiller claims that the phenomena observed by Jehl (which have been mentioned before) namely, that induced lordosis is liable to cause albuminuria in previously healthy children, is a manifestation of the universal asthenia to which Stiller long ago called attention. This asthenia is the basis upon which the orthostatic albuminuria develops, as is also the narrowing of

the upper aperture of the chest—all are the consequence of the general asthenia characterized by the tendency to sagging of the viscera, nervous dyspepsia, neurasthenia, of both volitional and involuntary nervous system—motor, sensory and secretory disturbances of the stomach. This constitutional inferiority is responsible for albuminuria. In the case under discussion the writer could discover no evidence of this all-including condition called by Stiller "universal asthenia." This patient presents no abnormal narrowing of the upper aperture of the chest and no sagging of the viscera except what one would expect in the increased lordosis which was the only prominent symptom present.

In a series of cases of orthostatic albuminuria selected at random, M. H. Bars and H. Wessler observed that a considerable number presented evidence of relative cardiovascular insufficiency. These symptoms, they say, in a great majority of cases, are not associated with any hypertrophy or dilatation of the heart. On the contrary, the heart, in many cases, is smaller than normal, nor does it show any evidence of weakness or dilatation after exercise. Although the hearts do not dilate after exercise, a certain number failed to become smaller under these conditions. This failure to contract may, perhaps be looked upon as a restriction of the cardiac response. After exercise our case showed what might be considered normal enlargement which returned to normal size upon resting and in no way discernible showed cardiovascular insufficiency.

V. C. Rowland, writing as late as December, 1912, summarized the modern view of orthostatic albuminuria as an increased permeability to the serum albumin of the blood due to vasomotor instability with low pulse pressure, and this in turn being due to a relatively undeveloped state of the cardiovascular system at a time of rapid growth of the body, and further that various mechanical factors, such as lordosis, probably influenced the condition.

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PIG-SKIN FOR HUMAN GRAFTS.—An unverified press report on Nov. 2 states that Dr. C. S. Venable, of San Antonio, Tex., has successfully employed the skin of young pigs in grafts on human beings. This is said to have been described in a recent communication before the Medical Association of the Southwest.